US Army Corps of Engineers
Kansas City District

TUTTLE CREEK DAM

FACT SHEET

April 2001

KANSAS EARTHQUAKES

- More than 25 earthquakes with epicenters in the borders of Kansas have been felt during the past 133 years, beginning with the earthquake of April 24, 1867 near Wamego, Kansas. This earthquake magnitude was 5.1 and is the largest earthquake known to have occurred in Kansas. This earthquake cracked walls in Manhattan, caused areas of the Kansas River valley sands to liquefy south of Wamego, and caused minor damage in Wamego, Junction City, Lawrence, and Kansas City. The shaking was felt as far away as Indiana, Kentucky, and Arkansas.

- An earthquake of magnitude 4.7 occurred on January 7, 1906. This earthquake was centered in the Manhattan area with smaller aftershocks continuing until late January.

- Again in 1929, a series of four earthquakes with magnitudes between 3.2 and 4.2 occurred in the area surrounding Manhattan between September and December.

- Before 1867, earthquakes generally went unreported because there were few newspapers or other ways to record the occurrence and effects of earthquakes. Earthquakes that occurred before seismic instruments became common are described by the Modified Mercalli Intensity scale (MMI). The MMI scale describes the earthquake effects felt by people and structures, and reports from various locations can help seismologists to determine the approximate epicenters and magnitudes of past earthquakes.

- Since the 1960's, earthquake epicenters and magnitudes have been recorded on sensitive seismic instruments, including microseismic earthquakes that cannot be felt and have no noticeable effect at the surface. Detailed microseismic studies using very sensitive equipment have been performed by the Kansas Geological Survey and partially funded by the U.S. Army Corps of Engineers. These studies have shown that very small earthquakes occur routinely in Kansas. The majority of these very small earthquakes are related to the Nemaha Ridge/Humboldt fault zone, and other deep fault zones that show very little or no evidence of faults at the surface.

- While it is clear that the potential for significant earthquakes is present in east-central Kansas, this activity is typically of limited size and frequency. However, in the case of critical structures such as a major dam and reservoir, there is reason for caution given the potential for damage even with a low probability earthquake.

This fact sheet is published by the U.S. Army Corps of Engineers, the lead agency for the Tuttle Creek Dam Safety Assurance Program.
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